Rhode Island Interim Assessments

Test Specifications for Fixed-Form Interim Mathematics Assessments

March, 2012

Introduction

The purpose of this document is to describe the design and specification for the *Rhode Island Fixed-Form Interim Mathematics Assessments*. The objective of these assessments is to provide progress monitoring information. The progress monitoring information will provide an indication of a student's proficiency on selected critical content and skills measuring the Common Core State Standards (CCSS).

Test Design

The fixed-form interim assessments will be administered three times per year. The tentative administration schedule is provided below.

- Fall: November
- Winter: February
- Spring: April

The fixed-form interim assessments are sectioned into two sessions; each session is designed to be administered in a period of 30-45 minutes; however, both sessions could be administered during a class period for schools with block scheduling. In general, each session should take most students about thirty minutes to complete, but students should be given as much time as necessary. Each session will consist of a mixture of multiple-choice items, short-answer items, and constructed-response items. Constructed-response items will measure one or more clusters; however, their primary alignment will be to the Mathematical Practices from the CCSS.

Grade Level and Course Assessment Specifications

The tables that follow present the specifications for each assessment by grade level (or content area). Progress monitoring will be achieved by assessing all of the clusters outlined in a table in each of the three administrations throughout the year*.

*NOTE: The clusters presented in the following tables represent clusters from the critical areas of the CCSS. Due to test constraints, such as student testing time, and the purpose of these interim assessments, it is not feasible to assess all of the clusters and standards of the CCSS. **The content presented here is <u>not</u> intended to indicate the only content that should be taught and assessed throughout the year**.*

Grade 3

This table identifies the clusters to be assessed on each fixed-form interim assessment.

Table 1: Grade 3 Specifications

Clusters
Represent and solve problems involving multiplication and division.
Understand properties of multiplication and the relationship between multiplication and division.
Multiply and divide within 100.
Solve problems involving the four operations, and identify and explain patterns in arithmetic.
Develop understanding of fractions as numbers.
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Grade 4

This table identifies the clusters to be assessed on each fixed-form interim assessment.

Table 2: Grade 4 Specifications

Clusters
Use the four operations with whole numbers to solve problems.
Generalize place value understanding for multi-digit whole numbers.
Use place value understanding and properties of operations to perform multi-digit arithmetic.
Extend understanding of fraction equivalence and ordering.
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
Understand decimal notation for fractions, and compare decimal fractions.

Grade 5

This table identifies the clusters to be assessed on each fixed-form interim assessment.

Table 3: Grade 5 Specifications

Clusters
Understand the place value system.
Perform operations with multi-digit whole numbers and with decimals to hundredths.
Use equivalent fractions as a strategy to add and subtract fractions.
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

Grade 6

This table identifies the clusters to be assessed on each fixed-form interim assessment.

Table 4: Grade 6 Specifications

Clusters
Understand ratio concepts and use ratio reasoning to solve problems.
Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
Apply and extend previous understandings of numbers to the system of rational numbers.
Apply and extend previous understandings of arithmetic to algebraic expressions.
Reason about and solve one-variable equations and inequalities.
Represent and analyze quantitative relationships between dependent and independent variables.

Grade 7

This table identifies the clusters to be assessed on each fixed-form interim assessment.

Table 5: Grade 7 Specifications

Clusters
Analyze proportional relationships and use them to solve real-world and mathematical problems.
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
Use properties of operations to generate equivalent expressions.
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Grade 8

This table identifies the clusters to be assessed on each fixed-form interim assessment.

Table 6: Grade 8 Specifications

Clusters
Work with radicals and integer exponents.
Understand the connections between proportional relationships, lines, and linear equations.
Analyze and solve linear equations and pairs of simultaneous linear equations.
Define, evaluate, and compare functions.
Understand congruence and similarity using physical models, transparencies, or geometry software.
Understand and apply the Pythagorean Theorem.

Algebra 1

This table identifies the clusters to be assessed on each fixed-form interim assessment. The CCSS standards in high school represent conceptual categories; therefore some clusters have been modified to reflect typical content for each of the three content areas. These modifications and appropriate changes to the clusters are indicated as <u>underlined additions</u>. **Note:** Only linear and quadratic equations/functions will be measured in Algebra 1.

Table 7: Algebra 1 Specifications

Clusters	Standards contributing to Cluster
Extend the properties of exponents to rational exponents	N-RN.1-2
Perform arithmetic operations **(<u>addition, subtraction, multiplication</u>)** on polynomials	A-APR.1
Create equations that describe numbers or relationships **(linear and quadratic)**	A-CED.1-4
Solve equations and inequalities in one variable	A-REI.3-4
Understand the concept of a function and use function notation	F-IF.1-2
Interpret functions that arise in applications in terms of the context **(linear and quadratic only)**	F-IF.4-5
Summarize, represent, and interpret data on a single count or measurement variable	S-ID.1-3

Geometry

This table identifies the clusters to be assessed on each fixed-form interim assessment. The CCSS standards in high school represent conceptual categories; therefore some clusters have been modified to reflect typical content for each of the three content areas. These modifications and appropriate changes to the clusters are indicated as underlined additions.

Table 8: Geometry Specifications

Clusters	Standards contributing to Cluster
Experiment with transformations in the plane	G-CO.1-5
Prove geometric theorems	G-CO.9-11
Prove theorems involving similarity	G-SRT.4-5
Define trigonometric rations and solve problems involving right triangles	G-SRT.6-8
Use coordinates to prove simple geometric theorems algebraically	G-GPE.4-7
Understand and apply theorems about circles	G-C.1-3
Explain volume formulas and use them to solve problems	G-GMD.1, 3

Algebra 2

This table identifies the clusters to be assessed on each fixed-form interim assessment. The CCSS standards in high school represent conceptual categories; therefore some clusters have been modified to reflect typical content for each of the three content areas. These modifications and appropriate changes to the clusters are indicated as underlined additions.

Table 9: Algebra 2 Specifications

Clusters	Standards contributing to Cluster
Interpret functions that arise in applications in terms of the context	F-IF.4, 6
Build a function that models a relationship between two quantities	F-BF.1a–b, 2
Summarize, represent, and interpret data on two categorical and quantitative variables	S-ID.6a-b
Understand solving equations as a process of reasoning and explain the reasoning (**focus on rational and radical equations)**	A-REI.1-2
Construct and compare linear, quadratic, and exponential models and solve problems **(focus on exponentials)**	F-LE.1a,c, 2-4
Create equations that describe numbers or relationships **(exponential and rational focus)**	A-CED.1-4
Understand interdependence and conditional probability and use them to interpret data	S-CP.1-5